**HW p. 455 day 2**

8)
(a) True
(b) True
(c) True
(d) True

22) (a) newspaper: $\hat{p} = 53\%$ $n = 1200$

stat class: $\hat{p} = 54\%$ $n = 450$

The stat class will have the larget MOE because they have a smaller sample size.

(b) **STATE AND CHECK CONDITIONS!

newspaper: $\hat{p} \pm (z^*)\left(\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}\right) = (0.50176, 0.55824)$

stat class: $\hat{p} \pm (z^*)\left(\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}\right) = (0.49395, 0.58605)$

(c) the stat class, because 50% is in their interval, so it is a possible value.

24) $\hat{p} = 49/207 = 0.2367$

| (a) STATE | CHECK |
|---|---|
| - SRS | assumed |
| - $np \geq 10$ | $(207)(0.2367) \geq 10$ |
| $nq \geq 10$ | $(207)(0.7633) \geq 10$ |
| - pop $\geq 10n$ | There are more than 2070 pregnant women under 40 |

$N(0.2367, 0.0295)$

$$\hat{p} \pm (z^*)\left(\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}\right) = (0.18812, 0.28531)$$

(b) We are 90% ocnfident that the true % of live births is between 18.812% and 28.531%.

(c) In repeated samplings of size 207, 90% of the intervals created would catch the true percent of live births.

(d) no, they do not disprove the claim of 25%. The interval is 18.812% -- 28.531%. 25% is in that interval.

29) $m = (z^*)\left(\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}\right)$

(a) $0.06 = (1.645)\sqrt{\frac{(0.25)(0.75)}{n}}$ $n = 141$

(b) $0.04 = (1.645)\sqrt{\frac{(0.25)(0.75)}{n}}$ $n = 318$

(c) $0.03 = (1.645)\sqrt{\frac{(0.25)(0.75)}{n}}$ $n = 564$

For a, b, and c, if you used 50% as your p, answers are:

(a) 188 (b) 423 (c) 752

30) $m = (z^*)\left(\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}\right)$

(a) $0.05 = (2.326)\sqrt{\frac{(0.5)(0.5)}{n}}$ $n = 542$

(b) $0.03 = (2.326)\sqrt{\frac{(0.5)(0.5)}{n}}$ $n = 1503$

(c) $0.01 = (2.326)\sqrt{\frac{(0.5)(0.5)}{n}}$ $n = 13{,}526$

It would not be easy to try and contact that many businesses.